FIRST FIVE-YEAR REVIEW REPORT FOR
MARTIN AARON INC. SUPERFUND SITE
CAMDEN COUNTY, NEW JERSEY

Prepared by

U.S. Environmental Protection Agency
Region 2
New York, New York

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Constituent of Concern
DGA	Dense-Graded Aggregate
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
ICs	Institutional Controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objectives
RFA	Remedial Field Activities
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SVOC	Semivolatile Organic Compound
TBC	To be considered
TCE	Trichloroethylene
TSCA	Toxic Substances Control Act
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the first FYR for the Martin Aaron Inc. Superfund Site (Site). The triggering action for this statutory review is the on-site construction start date of the Operable Unit (OU) 1 Remedial Action (RA). The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of one OU, which is being addressed in two Phases. The OU1 Phase 1 RA addressed the soil remedy and the OU1 Phase 2 RA will address the groundwater remedy. This FYR covers the Phase 1 soil remedy.

Construction of the OU1 Phase 1 RA was completed in 2019. The Phase 1 RA includes a period of post-construction groundwater monitoring to help evaluate the effectiveness of the Phase 1 RA. The Potentially Responsible Party (PRP) will also use the data gathered from the groundwater monitoring to design the OU1 Phase 2 remedy.

The Martin Aaron Inc. Superfund Site FYR was led by Shane Nelson, EPA Remedial Project Manager. Participants included Kathryn Flynn, EPA Hydrogeologist; Abbey States, EPA Human Health Risk Assessor; Dr. Abby DeBofsky, EPA Ecological Risk Assessor; and Natalie Loney, EPA Community Involvement Coordinator. The PRP was notified of the initiation of the FYR, which began on October 1, 2020.

Site Background

The Site has been used for industrial activities as early as 1886. From 1887 to 1940, the Site was used for the tanning and glazing of hides and leathers and associated operations. In 1940, the property was seized by the City of Camden due to tax delinquency and a portion was used for a hair-and-wool blending business. Martin Aaron Incorporated purchased the Martin Aaron property in 1969 and began operating a drum reconditioning facility. The Martin Aaron property was used by various owners and operators of drum cleaning and recycling operations and a scrap yard until operations ceased in 1998.

Commercial, light industrial, and residential areas surround the Site. The Site is bounded to the east by South Sixth Street, across from which there is a metal recycling facility, to the west by South Broadway, to the south by Jackson Street, and to the north by Everett Street.

The Site is flat with no permanent water bodies. The nearest surface water body is the Delaware River, approximately 0.75 miles west of the Site. Other surface water bodies include the Cooper River approximately 2 miles north-northeast and Newton Creek approximately 1.5 miles south of the Site (Figure 1).

The Site encompasses approximately 6.5 acres in the City of Camden, Camden County, New Jersey. The address of the 2.4-acre Martin Aaron property is 1542 South Broadway, Camden, New Jersey.

Section IV of the Consent Decree defines the site as including the following properties on the tax map of Camden County for the City of Camden (Figure 2):

- Martin Aaron property, Block 460, Lot 1.
- Comarco property, Block 460, Lots 3 and 26.
- Scrapyard (Ackerle) property, Block 460, Lots 2 and 4.
- Ponte Equities property, Block 460, Lot 29.
- Various adjacent right-of-way locations, including the areas between the properties listed above and Broadway, South 6th, Jackson, and Everett Streets.

The Site consists of fill placed above the estuarine deposits of the Meadow Mat Complex, which are silt and clay with high organic content. The Cape May Formation underlies the Meadow Mat and consists of medium to coarse sand with gravel. The sand and gravel of the Magothy Formation occur below the Cape May. The shallowest groundwater unit at the Site occurs as a perched aquifer within the historic fill above the Meadow Mat Complex. The Cape May aquifer is a semiconfined aquifer below the Meadow Mat, and the Upper Potomac-Raritan-Magothy (UPRM) aquifer system occurs below the Cape May Formation. There is a semi-confining unit at the top of the UPRM that is found across much of the Site.

There are no drinking water wells at the Site or the surrounding properties. Camden County Municipal Utility Authority (CCMUA) provides drinking water to the City of Camden using water supply wells that draw water from the PRM Aquifer System. CCMUA provides drinking water to approximately 105,000 residents within four miles of the Site. The nearest CCMUA well is located approximately 1.75 miles east-northeast of the Site.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Martin Aaron Superfund Site		
EPA ID: NJD014623854		
Region: 2	**State:** NJ	**City/County:** Camden/Camden
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** No	

REVIEW STATUS
Lead agency: EPA ***[If "Other Federal Agency", enter Agency name]*:**
Author name (Federal or State Project Manager): Shane Nelson
Author affiliation: EPA
Review period: 10/1/2020 - 10/1/2021
Date of site inspection: 7/16/2021
Type of review: Statutory
Review number: 1
Triggering action date: 9/13/2016
Due date *(five years after triggering action date)*: 9/13/2021

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

From 1981 to 1995, the NJDEP and the EPA issued numerous Notices of Violations, Administrative Orders and other enforcement actions against the operators of the Site. Violations included unpermitted discharges of hazardous waste, non-notification of spills or releases, improper storage, handling, and disposal of waste, and improper labeling of hazardous waste containers. In 1987, NJDEP discovered hazardous waste in drums and levels of metals in soil above appropriate NJDEP criteria.

A Remedial Investigation/Remedial Alternatives Analysis (RI) conducted by NJDEP between 1997 and 2000 identified levels of organic and inorganic constituents in excess of the NJDEP soil cleanup criteria in surface and subsurface soil at Martin Aaron and the surrounding properties. Chlorinated and aromatic volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs), and metals were identified as the constituents of concern (COCs) in surface and subsurface soil. The RI also determined that shallow groundwater was contaminated with chlorinated and aromatic VOCs, SVOCs, pesticides/PCBs, and metals above NJDEP Groundwater Quality Criteria (GWQC). Contaminants in the deep aquifer included chlorinated hydrocarbons and metals, but fewer compounds and at lower concentrations than in the shallow aquifer.

A 2005 baseline risk assessment conducted by EPA identified potential non-carcinogenic hazards and risks above EPA target risk levels associated with metals (primarily arsenic, barium, chromium, iron, and mercury), PCB Aroclor 1254, and tricholoroethylene (TCE). Potential carcinogenic hazards and risks above EPA target risk levels were primarily associated with arsenic, TCE, and carcinogenic polycyclic aromatic hydrocarbons (PAHs). EPA's baseline risk assessment identified several potential exposure pathways by which the public may be exposed to contaminants at the Site under current and future land use and groundwater use conditions. The potential non-carcinogenic hazards and carcinogenic risks for trespassers and industrial workers and future receptors (industrial workers, adult

and child residents, and construction workers) associated with potential exposures to environmental media at the Site exceeded EPA target risk levels.

A Screening Level Ecological Risk Assessment indicated the presence of contaminants of potential concern in surface soil at the Martin Aaron property. Potential risks to terrestrial plants and wildlife and soil invertebrates were associated with direct exposure to PAHs, inorganic chemicals, several pesticides, PCBs, and VOCs. Habitats on the Martin Aaron Property had been highly disturbed by past activities and provided only very limited viable habitat for ecological receptors. VOCs and inorganic chemicals in groundwater were detected at concentrations exceeding ecological screening values, suggesting they could represent a potential risk to ecological receptors if they were to discharge to a viable aquatic habitat, which was not identified at the Site. Because of the small potential to adversely impact aquatic life, further consideration of groundwater was not warranted.

Response Actions

NJDEP conducted several interim remedial measures from 1995 to 1999 after the operators failed to respond to numerous directives to clean up the site. NJDEP removed soil, approximately 700 drums of chemical wastes, 10,000 empty drums, dumpsters filled with mixed waste, and underground storage tanks. In 1998, the City of Camden demolished the Martin Aaron building, the main building used for drum reconditioning operations, because it was in danger of collapse.

The Site was placed on the National Priorities List (NPL) in 1999, and EPA became the lead agency for the Site. EPA removed drums of hazardous waste, storage tanks and contaminated soil and debris and fenced the property to prevent trespassing.

On September 30, 2005, EPA issued a Record of Decision (ROD) that identified the remedy selected to address contaminated soil and groundwater at the Site. The remedial action objectives (RAOs) associated with the soil remedy are:

- Reduce or eliminate the direct contact threat associated with contaminated soil to levels protective of a commercial or industrial use and protective of human health and the environment;
- Prevent erosion and off-site transport of contaminated soils;
- Reduce or eliminate the migration of site contaminants from soil to groundwater and surface waters; and,
- Prevent public exposure to contaminated groundwater that presents a significant risk to human health and the environment.

The OU1 Phase 1 remedy for impacted soil at the Site consisted of excavation and off-site transportation, treatment as necessary, and land disposal of materials containing concentrations of total volatile organic compounds (TVOC) greater than 1 milligram per kilogram (mg/kg) or ppm for specified constituents, arsenic greater than 300 mg/kg, and PCBs greater than or equal to 50 mg/kg. Direct contact barriers would be installed to cap remaining materials that contain residual concentrations of PCBs exceeding soil cleanup goals.

The selected soil remedy also included:

- Backfilling and grading of excavated areas;

- Implementation of a long-term groundwater sampling and analysis program to assess migration and possible attenuation of the groundwater contamination; and
- Institutional controls such as deed notices to prevent exposure to residual soils that may exceed levels that would allow for unrestricted use and a Classification Exception Area to restrict the installation of wells and the use of groundwater in the area of groundwater contamination.

Table 1. Martin Aaron Cleanup Goals for Soil

Contaminant of Concern	Remediation Goal (mg/kg or ppm)
Arsenic	300
Benzene	1
Bis(2-chloroethyl)ether	1
Chloroform	1
Tetrachloroethylene	1
Trichloroethylene	1
Vinyl Chloride	10
PCBs	10

Status of Implementation

The Pre-Design Investigations (PDI) at the Site discovered complex subsurface conditions. A distinct arsenic source material with a range of arsenic concentration from 24.2 mg/kg to 19,800.0 mg/kg and a mean concentration of 4,542.5 mg/kg was identified. This material was possibly a product of tannery operations and occurred at thicknesses up to four feet across a significant portion of the site. Many locations in the Meadow Mat were contaminated with arsenic. The PDI also found more extensive PCB-contaminated material. Significant buried infrastructure was delineated at the Site, including masonry and stone foundation walls and supporting concrete footings; demolition debris-filled basements; thick monolithic foundations; an apparent timber low-deck structure; a large diameter sewer pipe; and various piping and conduits. The final Remedial Design was submitted in 2015 and was revised in 2017.

Remedial Action started in 2016 with Remedial Field Activities (RFAs) to prepare the Site for the 2017 - 2018 RFAs and remove approximately 10,000 tons of shallow concrete structures. Removal of the concrete allowed installation of the excavation support sheet piling, reduced the volumes of soil and concrete that would need to be managed during the 2017 - 2018 RFAs, cleared stockpile space, and reduced unknown materials and structures in subsurface soil. The 2016 RFAs were completed in January 2017.

The 2017 – 2019 RFAs started in April 2017. Soil that contained concentrations of arsenic and TVOC greater than cleanup goals and PCBs at concentrations greater than or equal to 50 mg/kg were excavated and disposed off-site (Figure 3). Some soil and concrete that contained residual concentrations of PCBs were reused as fill under direct contact barriers that cap portions of the Site (Figure 4). The 2017 – 2019 RFAs for the OU1 Phase 1 RA were completed in December 2019.

Table 2. Excavated Material Removed or Reused during Phase 1 RA

Material	Total
Arsenic source material (>300 mg/kg)	70,225 tons disposed off-site
Mixed TVOC source material (> 1 mg/kg) / Non-TSCA PCB-Impacted Material (< 50 mg/kg)	18,306 tons disposed off-site
Non-TSCA PCB-Impacted Material (< 50 mg/kg)	1,965 cubic yards reused on-site as backfill and capped
TSCA PCB-Impacted Material (≥ 50 mg/kg)	6,027 tons disposed off-site

Direct Contact Barriers (Caps)

Direct contact barriers, or caps, were constructed for the following properties with combinations of cover soil, stone, dense graded aggregate (DGA), concrete, and asphalt (Figure 4):

- Martin Aaron property. In the areas where materials containing concentrations of PCBs equal to or less than 49 mg/kg were consolidated, the cap is comprised of 18-inches of cover soil overlain by 6-inches of asphalt; in all other areas the cap is comprised of 18-inches of cover soil overlain by 6-inches of stone;
- Comarco property and surrounding sidewalks. The cap is comprised of a combination of concrete and asphalt;
- Scrapyard (Ackerle) property. The cap is comprised of 18-inches of cover soil overlain by 6-inches of stone; and
- Ponte property. The cap is comprised of 18-inches of cover soil overlain by 6-inches of DGA; and
- Sidewalk areas adjacent to Martin Aaron, Ackerle, and Ponte properties. The cap is 24-inches of DGA or a combination of DGA and stone. Concrete sidewalks and ramps that comply with the Americans with Disabilities Act were constructed above the caps but are not components of the caps.

The Site is fenced and secured. Deed notices have been or will be established for the following properties associated with the Site (Figure 2):

- Martin Aaron property, Block 460, Lot 1. Deed notice recorded on January 12, 2021.
- Comarco property, Block 460, Lots 3 and 26. Deed notice recorded on September 16, 2020. The deed notice transferred with the recent sale of the property.
- Scrapyard (Ackerle) property, Block 460, Lot 2. Deed notice is in process.
- Ponte Equities property, Block 460, Lot 29. Deed notice recorded on July 7, 2021.

Following the completion of the deed restriction that is in process for the scrapyard (Ackerle) property, the OU1 Phase 1 RA will have achieved the four RAOs associated with the soil remedy.

The OU1 Phase 1 RA also included installation of a new monitoring well network. Post-construction groundwater monitoring started in fall 2020 in accordance with the Interim Monitoring Plan. The groundwater monitoring will evaluate the impact of the Phase 1 RA on groundwater quality through sampling and analysis for contaminants of concern and evaluate post-construction groundwater flow conditions.

Potential Site impacts from climate change have been assessed, and the performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the Site.

Institutional Control Summary Table

Table 3. Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	Limits of Soil Remediation	Residential Use Prohibition and Low Occupancy Restriction	Deed Notices (Completion in 2022)

III. PROGRESS SINCE THE LAST REVIEW

This FYR is the first FYR for the Martin Aaron Superfund Site.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On Friday, August 6, 2021, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies a Superfund sites in New York, New Jersey, Puerto Rico and the Virgin Islands, including the Martin Aaron Superfund Site. The announcement can be found at the following web address: https://www.epa.gov/superfund/R2-fiveyearreviews.

In addition to this notification, efforts will be made to reach out to local public officials to inform them of the results. The EPA Community Involvement Coordinator (CIC) for the Site, Natalie Loney, arranged for a notice to be posted on the city's website, as well as the EPA website, www.epa.gov/superfund/martin-aaron. This notice indicated that a Five-Year Review (FYR) would be conducted at the Martin Aaron Superfund Site to ensure that the Site is protective of human health and the environment. Once the FYR is completed, the results will be made available on the following website: www.epa.gov/superfund/martin-aaron.

Data Review

The data assessed in this FYR is included in the comprehensive Final Remedial Action Report for the Martin Aaron OU1 Phase 1 remedial action and the 2020 Annual Inspection Report.

Phase 1 RA excavation volumes and areas, material segregation and stockpiling, and off-site disposal of arsenic, VOC, and PCB waste were determined using a comprehensive sampling plan. Excavation was

divided into 12 excavation cells and not all waste types were encountered in each excavation cell. Sidewall and bottom verification samples were collected throughout the excavation of each cell to verify lateral and vertical extents of waste types. Additional excavation was required until concentrations of sidewall and bottom samples demonstrated arsenic and VOC concentrations below the site criteria of 300 mg/kg and 1 mg/kg, respectively.

Excavated material was segregated and transferred to the stockpile area for impacted material. Waste characterization sampling was conducted on all stockpiled materials at a frequency of at least one sample per every 500 cubic yards for upper overburden material and 45 cubic yards for transition zone overburden material to verify the material was appropriate for on-site re-use or to determine if off-site disposal was required. 70,225 tons of material containing concentrations of arsenic greater than 300 mg/kg, 18,306 tons of mixed material containing concentrations of TVOC greater than 1 mg/kg and concentrations of PCBs less than 50 mg/kg, and 6,027 tons of material containing concentrations of PCBs greater than or equal to 50 mg/kg were transported off site for disposal. 1,965 cubic yards of material containing PCBs at concentrations less than 50 mg/kg was consolidated and placed under asphalt-capped areas on site (Figure 4).

Two rounds of groundwater data have been collected following the soil remediation. Trends will be discussed in future FYRs.

FYR Site Inspection

The inspection of the Site for the FYR was conducted on 7/16/2021. In attendance were Shane Nelson, USEPA; Kathryn Flynn, USEPA; Dr. Abby DeBofsky, USEPA; Geoffrey Seibel and Danielle Ondic, de maximis, inc., managing contractors for the Martin Aaron PRP Group; and Leanne Austrins, Dow Chemical Company, representing the PRP Group. The purpose of the inspection was to assess the protectiveness of the remedy.

The remediated areas are covered with gravel and asphalt that was found to be intact. The Site fence and gates are well maintained and in good condition. No evidence of trespassing or other unauthorized access was discovered and nothing was noted on the Site or adjacent properties that might change exposure scenarios.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes, the remedy is functioning as intended by the decision documents. The selected remedy required excavation of contaminated soil with disposal or treatment off-site followed by backfilling and capping. Clean fill and excavated soil that contained residual concentrations of PCBs exceeding the site cleanup goals were used as fill. Soil containing residual concentrations of PCBs was used as fill only in areas of the Site where direct contact barriers were installed. Pre- and post-excavation sampling confirmed removal of all materials containing levels of arsenic, VOCs, and PCBs above removal criteria. The soil remedy was executed as intended by the ROD.

The annual inspection of the Martin Aaron Site was conducted by the PRP Group managing contractor on May 1, 2020. The inspection report documents that the integrity of the cap was found to have been maintained and the perimeter fencing was in good condition and functioning properly. These site conditions were confirmed during the 7/16/21 FYR Site inspection.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

Yes, the exposure assumptions, toxicity and cleanup values, and RAOs remain valid. The potential exposure pathways for contaminated soil at on-site and off-site areas have effectively been eliminated through the removal and capping of contaminated soil. There are no changes in the physical conditions of the Site or Site uses that would affect the protectiveness of the selected remedy. Land use assumptions and pathways evaluated in the RI/FS and considered in the decision document remain valid.

Habitats on the Martin Aaron Property have been disturbed by past activities and provide only limited viable habitat for ecological receptors. Excavation and off-site disposal eliminates potential risk from surface soil contaminants to terrestrial receptors. Therefore, the remedial action objectives associated with ecological risk remain valid.

QUESTION C: Has any **other** information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
Operable Unit 1

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit: Oprable Unit 1	*Protectiveness Determination:* Will be Protective
Protectiveness Statement: The remedy at OU1 is expected to be protective of human health and the environment upon completion. In the interim, remedial actions completed for Phase 1 of the OU1 RA have adequately addressed soil exposure pathways that could result in unacceptable risk in these areas.	

VIII. NEXT REVIEW

The next FYR report for the Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

Document Title, Author	Submittal Date
Record of Decision, Operable Unit 1 – Soil and Groundwater, Martin Aaron Inc. Superfund Site, City of Camden, New Jersey; EPA	2005
Consent Decree for Performance of Phase 1 of the Remedial Action for the Martin Aaron Superfund Site; DOJ	2008
Final Remedial Action Report: Remedial Action Phase 1 Operable Unit One (OU-1) Martin Aaron Supertfund Site Camden, New Jersey; Frey Engineering, LLC.	2020
OU1 O and M Plan (Appendix L of the Remedial Action Report); Frey Engineering, LLC	2020
Annual Inspection Report for the Martin Aaron Superfund Site; de maximis inc.	2021

APPENDIX B – SITE CHRONOLOGY

Event	Date(s)
Martin Aaron, Inc. starts drum recycling business on the property	1968
Rhodes Drum Inc. and Drum Service of Camden, a joint venture, start operations on the property	1985
Joint venture dissolves, Drum Service of Camden continues operations as Westfall Ace Drum Company	1986
NJDEP and EPA issue Notices of Violations, Administrative Orders and other enforcement actions	1980 - 1995
Operations cease on the Martin Aaron property	1998
New Jersey Department of Environmental Protection (NJDEP) interim remedial measures	1995 - 1999
NJDEP Remedial Investigation/Remedial Alternatives Analysis	1997
Site placed on the National Priorities List (NPL)	1999
EPA becomes lead agency for the Site	2000
EPA completes additional removal actions	2001
EPA Remedial Investigation/Feasibility Study (RI/FS)	2005
Record of Decision for remediation of contaminated soil and groundwater	2005
Assessment of the Ponte Equities property	2006
Consent Decree for Phase 1 Remedial Action	2008
Pre-Design Investigations and Phase 1 Remedial Design	2010 - 2015
Phase 1 Remedial Action	2016 - 2019
Phase 1 Remedial Action Report approved	2020
Interim Groundwater Monitoring Plan implemented	2020

APPENDIX C – FIGURES

Figure 1 – Site Location

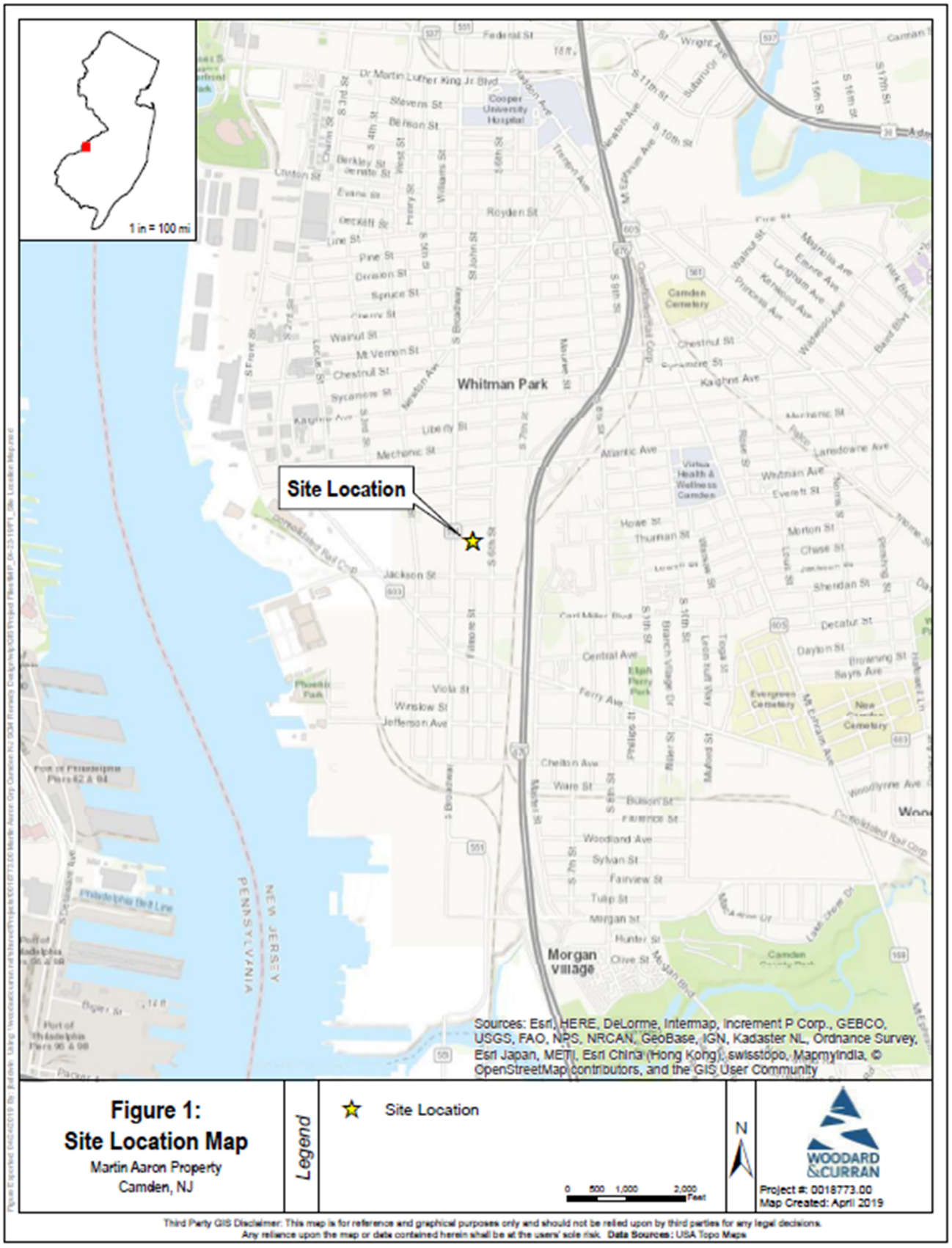

Figure 2 – Site Map

Figure 3 – Extents of Excavation and Limit of Soil Remediation

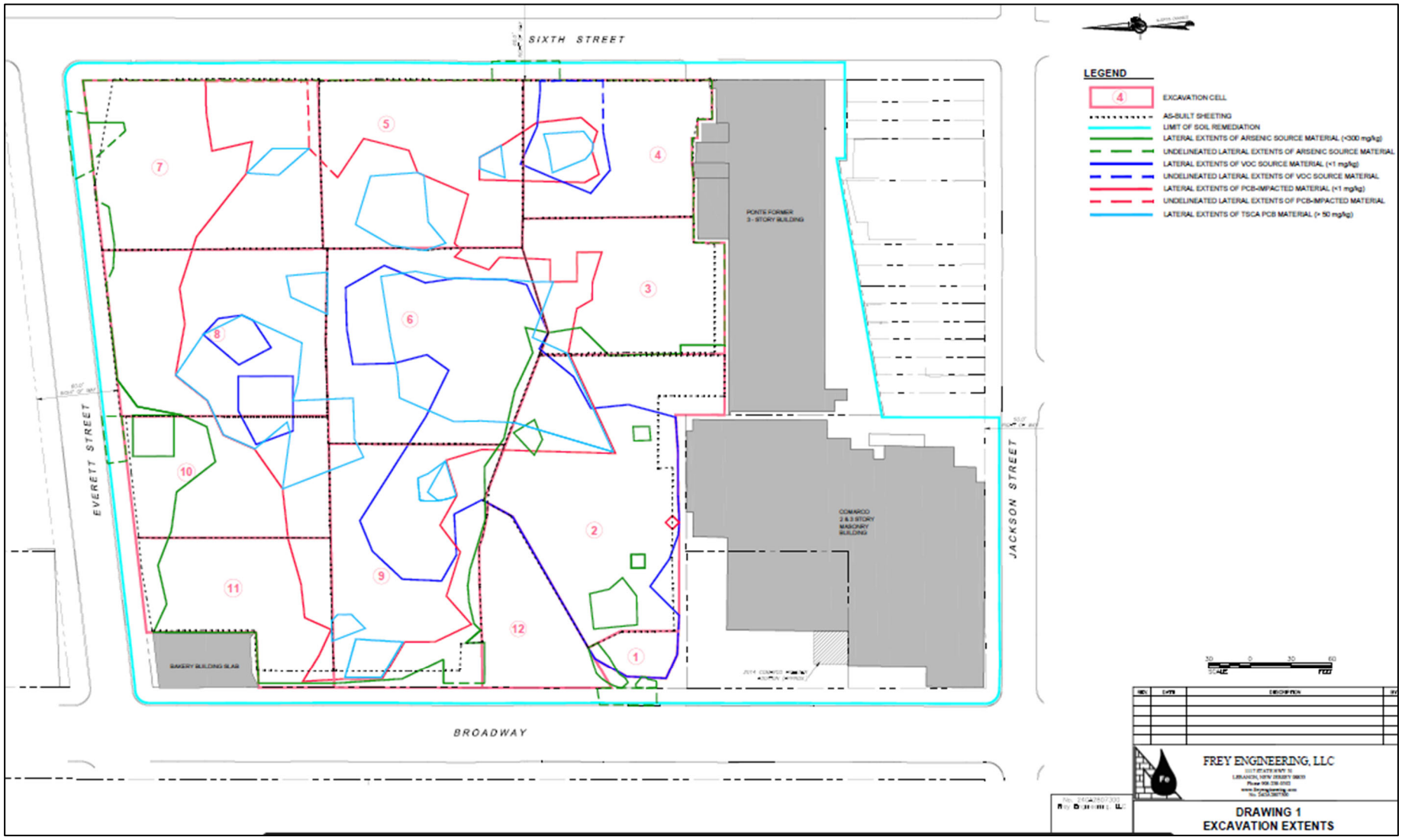

Figure 4 - Final Site Capping and Grading